Trauma-Related Symptomatology Among American Indian Adolescents

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The Diagnostic Interview Schedule for Children (DISC-2.1C), including the posttraumatic stress disorder (PTSD) module, was administered to 109 American Indian adolescents from a Northern Plains reservation. In response to the DISC's open-ended probes, 61% of respondents reported at least one traumatic event. Despite high rates of trauma and substantial numbers of subsyndromal PTSD symptoms, the prevalence rate of diagnosable PTSD was found to be only 3%. The reporting of traumatic events was associated with increased prevalence of behavioral disorders and substance abuse or dependence diagnoses. There was, however, no significant difference in academic performance (grade point average or scholastic aptitude test scores) between those who reported traumatic events, or PTSD symptoms, and those who did not.

KEY WORDS: trauma; adolescent; American Indian; PTSD.

Too frequently, American Indian youth living in reservation communities are confronted with a continual barrage of incidents that are stressful by any definition. Epidemiologic survey data show that accidents are the leading cause of death for American Indian youth under the age of 24.

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Suicide and homicide are the second and third leading causes of death, respectively, for Indian youth 15 to 24 years of age (U.S. Congress, Office of Technology Assessment, 1990; U.S. Department of Health and Human Services, 1991). High rates of unemployment and attendant poverty also take their toll on the well-being of Indian children (Little Eagle, 1993).

There is evidence that exposure to childhood trauma can have serious psychological and behavioral consequences (McFarlane, 1987). Johnson (1989) reported a robust correlation between the occurrence of early traumatic events and later behavior problems in Caucasian youth. Breslau, Davis, Andreski, and Peterson (1991) reported that a sample of previously traumatized young adults were at higher risk for psychiatric disorders than a control group. Similarly, Turner (1994) found in surveys of adults that traumatic stressors were the most robust predictors of later symptoms.

While empirical data on mental health problems among American Indian youth are scarce, there is evidence that these youth are experiencing more mental health problems than adolescents in the general population (Blum, Harmon, Harris, Bergeisen, & Resnick, 1992; Dauphinais et al., 1991; U.S. Congress, Office of Technology Assessment, 1990). Specifically, there is evidence that American Indian youth have higher rates of depression (U.S. Congress, Office of Technology Assessment, 1990), suicide (May 1987), anxiety disorders (U.S. Congress, Office of Technology Assessment, 1990), and alcohol and substance abuse (Beauvais, Oetting, Wolf, & Edwards, 1989; May 1989). In addition, it has been reported that these youth drop out of school at high rates (U.S. Congress, Office of Technology Assessment, 1990). The present paper examines how exposure to traumatic events relates to psychiatric symptomatology, psychopathology, and academic performance in American Indian adolescents.

Within the context of this research effort, a question arose regarding the most meaningful way to assess the consequences of traumatic events in the lives of these American Indian youth. Diagnostically, the prevalence of posttraumatic stress disorder (PTSD) within this population is of interest. However, diagnostic classification alone cannot clearly represent the complexity of the issues involved. Therefore, this paper provides a description of the types of traumatic events reported by these youth, and the types of symptoms associated with these events. In addition, we explore how Indian adolescents who report having experienced traumatic events compare to those who report no such events with regard to demographic characteristics and academic performance. Within this context it is then possible to investigate the relationships between these traumatic events, the associated symptomatology, and the occurrence of psychopathology in this population.
Method

Subjects

Study participants included 109 students in grades 8 through 11 from a Plains Indian reservation in the North Central United States. Half of these students were female ($n = 54$), and the mean age for the group was 15.6 years ($SD = 1.1$). These adolescents were a subset of a group who had previously been studied as children (2nd and 4th grades) in the Flower of Two Soils project ($N = 251$) (Sack, Beiser, Clarke, & Redshirt, 1987). Due to logistical constraints, no attempt was made to interview students who had moved away or dropped out of school. Two students contacted refused to participate.

Instruments

A revised version of the Diagnostic Interview Schedule for Children (DISC-2.1C) (Fisher et al., 1993) was used in this Reinterview Study. The DISC is a structured psychiatric diagnostic instrument designed for use by lay interviewers in community epidemiologic studies.

The PTSD module of the DISC had been only recently developed at the time it was used in this study, and its psychometric properties have not yet been reported. The PTSD module allows the respondent to select what s/he considers to be a traumatic experience. The probes which elicit the reporting of these events ask respondents whether they have ever been in a situation where they were hurt very badly or thought they were going to die, whether they have seen someone else in such a situation (which may have, in fact, resulted in death), or whether such a thing has ever happened to someone to whom they felt close.

If, with the DISC interview, the respondent reports more than one traumatic event, s/he is then asked to refer to the “most upsetting” of these events throughout the subsequent questions regarding PTSD symptomatology. These items directly reflect the criteria for a DSM-III-R diagnosis of PTSD (American Psychiatric Association [APA], 1987).

Data Collection Process

Project staff were trained in the administration of the DISC-2.1C by two staff members from the New York Psychiatric Institute, where the DISC was developed. The DISC interviews were administered by lay Indian interviewers from the community, who underwent an extensive four day
training program. Practice interviews were conducted by the lay interviewers under staff supervision until each interviewer was deemed sufficiently familiar with the format to proceed.

In addition to the DISC interview data, information related to the academic performance of a subset of the students was obtained, including final grade point average (GPA) for the year, number of absences, and scholastic aptitude test (SAT) scores in mathematics, science, and social studies. We were able to obtain academic data for 80% of the study participants. These 87 individuals were not significantly different with regard to average age, gender distribution, or prevalence of DSM-III-R diagnoses from the 22 students for whom we could not obtain academic data. Therefore, although the reason why academic records were not obtainable for 22 of the students is unclear, it seems unlikely that the lack of available academic information for these students would bias our conclusions in any significant way.

Results

Experience of Traumatic Events

Sixty one percent of the students (n = 66/109) reported having witnessed or experienced a traumatic event. Of those students reporting a traumatic event, 38% reported only one event and 62% reported two or more events. Table 1 shows the percentage of students reporting specific kinds of traumatic events. The most frequently reported traumatic events were car accidents (37%), and deaths or suicides (28%) (Table 1).

PTSD Symptoms

The distribution of the number of PTSD symptoms reported by those who experienced a traumatic event (n = 66) was examined. Nearly half (41%) of these respondents reported between 1 and 3 PTSD symptoms, out of a possible 28 affirmative responses. While 35% of those who experienced a traumatic event reported no PTSD symptoms, 17% reported 6 or more symptoms, with one individual reporting 15 PTSD symptoms.

Some interesting patterns emerged when specific symptom profiles were examined. Fifty percent (33/66) of individuals reporting at least one traumatic event also reported reexperiencing the trauma in some way (i.e., fulfillment of PTSD diagnostic criteria B of the DSM-III-R). Forty seven percent (31/66) had intrusive thoughts about the traumatic event in the previous 6 months. Of those, 61% (19/31) said that thinking about the event
upset them a lot. With regard to other types of PTSD symptoms, 17% of subjects reporting at least one traumatic event also met criteria for the autonomic hyperarousal symptom-cluster (PTSD criteria D), and only 8% met criteria for avoidance or numbing symptoms (PTSD criteria C). Nine percent of individuals reporting a traumatic event said that they had experienced PTSD symptoms which lasted for at least 1 month (PTSD criteria E). Overall, 3% (3/109) of all study participants (5% of those reporting a traumatic event) met the DSM-III-R criteria for a diagnosis of PTSD, based on the symptom profiles which they reported during the DISC-2.1C interview.

**Comparisons Between Groups**

There was no significant difference in the mean age or gender distribution of those who reported at least one traumatic event and those who did not, or between those who reported at least one PTSD symptom and those who reported no such symptoms. In addition, there was no significant difference between girls and boys in the average number of traumatic events which they reported (girls: $M = 1.07$, $SD = 1.15$; boys: $M = 1.25$, $SD = 1.25$), or the average number of associated symptoms which they reported (girls: $M = 1.38$, $SD = 2.20$; boys: $M = 1.25$, $SD = 2.56$).

### Table 1. Frequency of Reported Traumatic Events

<table>
<thead>
<tr>
<th>Type of Event</th>
<th>Percentage of all Respondents Reporting the Event (N = 109)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car accident</td>
<td>37% 40</td>
</tr>
<tr>
<td>Death</td>
<td>28% 30</td>
</tr>
<tr>
<td>Shooting</td>
<td>7% 8</td>
</tr>
<tr>
<td>Stabbing</td>
<td>4% 4</td>
</tr>
<tr>
<td>Beating</td>
<td>7% 8</td>
</tr>
<tr>
<td>Overdose</td>
<td>4% 4</td>
</tr>
<tr>
<td>Serious injury</td>
<td>7% 8</td>
</tr>
<tr>
<td>Serious Illness</td>
<td>6% 7</td>
</tr>
<tr>
<td>Other</td>
<td>6% 7</td>
</tr>
</tbody>
</table>

*Percentages do not total to 100% across event types because some respondents reported more than one type of event.*
Psychiatric Morbidity and Experience of Trauma

The prevalence of DSM-III-R psychiatric diagnoses in relation to the reporting of traumatic events and PTSD symptomatology in this student population was examined.

Table 2 shows the prevalence rates of DSM-III-R disorders for those who reported one or more traumatic events vs. those who did not, and for those who reported one or more PTSD symptoms vs. those who did not. It is notable that those who reported at least one traumatic event showed a higher prevalence of disorder in three of the five diagnostic categories. Similarly, those who reported one or more PTSD symptoms showed a higher prevalence of disorder in three of the five diagnostic categories.

Table 2. Comparison of DSM-III-R Diagnostic Prevalence Rates Between Those Reporting and Not Reporting Traumatic Events and PTSD Symptomatology

<table>
<thead>
<tr>
<th>A. Stressor exposure</th>
<th>Percentage with One or More DSM-III-R Diagnosis</th>
<th>Percentage with an Anxiety Disorder Other Than PTSD</th>
<th>Percentage with a Mood Disorder</th>
<th>Percentage with a Substance Abuse or Dependence Disorder</th>
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<tbody>
<tr>
<td>One or more traumatic events ($n = 66$)</td>
<td>52% ($n = 34$)</td>
<td>18% ($n = 12$)</td>
<td>17% ($n = 11$)</td>
<td>32% ($n = 21$)</td>
</tr>
<tr>
<td>No traumatic events ($n = 43$)</td>
<td>30% ($n = 13$)</td>
<td>16% ($n = 7$)</td>
<td>12% ($n = 5$)</td>
<td>7% ($n = 3$)</td>
</tr>
<tr>
<td>Chi-square (p-value)</td>
<td>4.81 (.03)</td>
<td>.07 (.80)</td>
<td>.53 (.47)</td>
<td>9.36 (&lt;.01)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. PTSD symptoms</th>
<th>Percentage with One or More PTSD symptoms ($n = 43$)</th>
<th>Percentage with an Anxiety Disorder Other Than PTSD</th>
<th>Percentage with a Mood Disorder</th>
<th>Percentage with a Substance Abuse or Dependence Disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>One or more PTSD symptoms ($n = 43$)</td>
<td>63% ($n = 27$)</td>
<td>26% ($n = 11$)</td>
<td>21% ($n = 9$)</td>
<td>37% ($n = 16$)</td>
</tr>
<tr>
<td>No PTSD symptoms ($n = 23$)</td>
<td>30% ($n = 7$)</td>
<td>4% ($n = 1$)</td>
<td>9% ($n = 2$)</td>
<td>22% ($n = 5$)</td>
</tr>
<tr>
<td>Chi-square (p-value)</td>
<td>6.28 (.01)</td>
<td>4.54 (.03)</td>
<td>1.62 (.20)</td>
<td>1.65 (.20)</td>
</tr>
</tbody>
</table>
The academic performance of subjects who reported traumatic events and associated symptomatology was compared with the performance of those who did not. There was no significant difference in GPA between those who reported at least one traumatic event (GPA = 2.22) and those who did not (GPA = 2.20). Similarly, there was no significant difference in the average number of absences during the year between those who reported at least one traumatic event (absences = 18.1) and those who did not (absences = 19.4). In addition, performance on SAT tests was virtually identical between these two groups. With regard to reporting of symptomatology, similar results were found. There was no significant difference in final GPA, number of absences, or SAT scores between those who reported at least one PTSD symptom, and those who did not. These analyses were rerun comparing those who reported three or more symptoms with those who reported fewer than three symptoms, and identical results were obtained.

In summary, despite high rates of trauma and substantial numbers of subsyndromal PTSD symptoms, the prevalence rate of diagnosable PTSD was found to be only 3%. The reporting of traumatic events was associated with increased prevalence of behavioral disorders and substance abuse or dependence diagnoses. There was, however, no significant difference in academic performance (grade point average or scholastic aptitude test scores) between those who reported traumatic events, or PTSD symptoms, and those who did not.

This is, to our knowledge, the first empirical study of the impact of trauma on American Indian adolescents living on a Plains Indian reservation. Overall, it confirms what clinicians have long observed, namely that these youth experience a high degree of traumatic stress during their formative years. The study is hampered by the lack of a comparison group of nonreservation Indian or Caucasian youth. Thus, a definitive statement cannot be made regarding the level of trauma exposure or PTSD symptomatology in this group relative to youth in other settings.

This sample was not randomly chosen, but could be considered representative of adolescents attending school on this reservation. Students who had dropped out were not interviewed and thus, findings reported may underrepresent actual rates of trauma and PTSD symptoms that exist.

Discussion

In summary, despite high rates of trauma and substantial numbers of subsyndromal PTSD symptoms, the prevalence rate of diagnosable PTSD was found to be only 3%. The reporting of traumatic events was associated with increased prevalence of behavioral disorders and substance abuse or dependence diagnoses. There was, however, no significant difference in academic performance (grade point average or scholastic aptitude test scores) between those who reported traumatic events, or PTSD symptoms, and those who did not.

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In contrast to most trauma studies in which a sample is studied following exposure to a well-defined event (natural disaster, accident, violence, or war), this study had an epidemiologic design. These youth were asked to respond to an open-ended question regarding traumatic stressors that had occurred in their lives. The instrument used was a new module of the DISC-2.1C (Fisher et al., 1993) designed for diagnosing PTSD in community studies of children and adolescents. The open-ended nature of the inquiry regarding exposure to traumatic events incurs potential problems of both the over inclusiveness of stressors not usually considered “outside the range of usual human experience,” and the possibility of failing to identify significant types of trauma (such as sexual abuse) that may be unlikely to be elicited by the open-ended inquiry of the DISC.

Epidemiologic studies of PTSD in adults have yielded lifetime prevalence rates from 1% (Helzer, Robins, & McEvoy, 1987) to 9% (Breslau & Davis, 1992). The latter study comes closest to this one in the age of its sample (21–30 years) and was taken from the urban environment of Detroit, known for high levels of stress. Some comparisons of the present effort with the Breslau and Davis study provide interesting contrasts. For instance, 39% of the Detroit sample reported a traumatic event in their past, while 61% of the reservation sample noted one or more stressors they considered traumatic. In contrast to the Detroit study, no attempt was made to exclude any of the reported traumas. Despite the high rates of reported reservation trauma, the prevalence rate of diagnosed PTSD was roughly one third that found in the Detroit study (3% vs. 9%).

These youth reported a preponderance of automobile related (and most likely alcohol related) trauma (37%). In a national survey of 13,454 American Indian youth, Blum et al. (1992) found that 22% reported riding with a driver who was intoxicated, 38% reported drinking and driving, and 44% indicated they rarely or never used seat belts, indirectly substantiating our findings. The other major category of trauma reported involved either the sudden loss of someone close to the subject, or the witnessing of a death (28%). Again, the Blum et al. (1992) study pointed to similar findings in showing, for instance, that 11% of surveyed youth reported a suicide death of a relative.

How is one to account for the high rates of reported traumas in this sample, with a relatively low rate of DSM-III-R generated PTSD (and substantial numbers of subsyndromal PTSD symptoms)? No answer is immediately apparent, but several possibilities are plausible. First, methodologic and instrument problems, as mentioned above, may have over included stressors not belonging to the DSM definition of the stressor criterion, thus inflating this discrepancy. Second, cultural factors may have influenced the way this sample of Indian youth reported symptoms. The cultural environ-
ment of this reservation, along with elements of poverty, unpredictability and disruption may, paradoxically, have made the reported stressors less “outside the range of usual human experience” than would be the case in other settings, and therefore less liable to generate symptoms. Finally, the developmental stage of adolescence itself might encourage this group to minimize symptoms in a first interview with a stranger.

Much more empirical data are needed in order to understand the ways in which the configuration of PTSD symptoms differs for youth at different developmental stages. We intend to pursue these issues further in subsequent psychiatric epidemiologic studies. However, our current findings are in keeping with other studies of youth in environments of chronic stress, such as refugee camps (Savin, Sack, Clarke, Nee, & Richart, 1996) which have shown high levels of subsyndromal PTSD symptoms.

As others have shown (Singer, Menden Anglin, Song, & Lunghofer, 1995), traumatic experiences in youth are frequently accompanied by symptoms from other diagnostic categories. In this study, reported traumatic events were associated, not with mood disorders, but with behavioral diagnoses and substance abuse problems. In addition, reported PTSD symptoms were associated with substance abuse problems and with anxiety disorders. By comparison, the Breslau and Davis study (1992) of young adults found subjects with PTSD to also often be afflicted with mood and anxiety disorders. Interestingly, they also found that this group often reported antisocial behavior in their families.

It is encouraging that despite associations with behavioral and substance abuse disorders, this group of reservation Indian youth showed no measurable academic deficiencies. This result is in keeping with the findings of Terr (1983), who noted that children traumatized in the Chowchilla kidnapping did as well academically as the nontraumatized children. Similarly, a study of adolescent Khmer refugees suffering from war trauma as children (Sack, Clarke, Kinney, Belestos, Him, & Seeley, 1995) found no functional differences between those with war-related PTSD and those without.

Caution is warranted in generalizing these findings to Indian youth on other reservations, since conditions vary widely from one reservation to another. Other methodologic problems need to be noted, in addition to those already mentioned. No specific information was collected regarding the temporal relationship between the occurrence of reported traumatic events and the onset of PTSD symptoms, and therefore conclusions regarding causality cannot be made based on these analyses. Also, no attempt was made to verify the reported traumas from other sources, or to measure the intensity of the traumas or the frequency of the reported PTSD symptoms.

Nevertheless, this exploratory effort demonstrates the high rate of reported traumatic events in youth residing on a Plains Indian reservation.
The high level of trauma is accompanied by subsyndromal PTSD symptoms and strong associations with behavioral disorders and substance abuse problems. Traumatic stressors appear as part of the unfortunate fabric of reservation existence and may contribute more to psychopathology in the form of externalizing disorders than to PTSD per se. Clinicians need to continue to be alert to the presence of traumatic stress in the histories of reservation youth, the effects of which may be manifest in a variety of ways.

References


